

APPLICATION

FOR

UNITED STATES LETTERS PATENT

TO ALL WHOM IT MAY CONCERN;

BE IT KNOWN THAT I, **ALAN JAY MONDA**, a citizen of the United States, have invented new and useful improvements in a

ENCASED RESISTANCE CABLE PORTABLE EXERCISE

APPARATUS

Of which the following contains the specification.

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5 **ENCASED RESISTANCE CABLE PORTABLE EXERCISE APPARATUS**

FIELD OF THE INVENTION

 The present invention relates to exercise equipment. More particularly, the present invention relates to an exercise apparatus for carrying out a number of exercises to strengthen and condition the major muscle groups in the body.

10 **BACKGROUND**

 Cardiovascular and isometric exercise is required to maintain a healthy physical and mental wellness. In this regard, many forms of exercise equipment have been designed to achieve good health. For example, known exercise apparatuses employ weights to be lifted through a range of motion for exercising specific muscles
15 of the body. Other known apparatuses utilize friction mechanisms to generate a resistance proportion to relative movement of certain components of the exercising device. Another form of exercise equipment uses springs, rubber bands, surgical tubing or bungee cables to produce elastic resistance to movement in a particular direction.

20 Multiple-exercise apparatuses conveniently allow individuals to engage in both aerobic and anaerobic exercise for overall toning and strengthening of every major muscle group. In particular, the resistance-platform apparatuses are particularly well suited for providing both aerobic and anaerobic exercise because these types of exercise apparatuses provide both an isometric strengthening, as well as

cardiovascular training. For example, an individual is free to use a heavy resistance to isolate and strengthen a particular muscle group and/or achieve a cardiovascular workout by using light resistance at higher repetitions and switching from one muscle group to the next in a series of different exercises.

5 The following represents a list of known related art:

Reference:	Issued to:	Date of Issue:
5,792,034	Kozlovsky	August 11, 1998
5,529,562	Glaser	June 25, 1996
5,484,368	Chang	January 16, 1996
5,261,864	Fitzpatrick	November 16, 1993
4,645,204	Berger	February 24, 1987
4,376,533	Kolbel	March 15, 1983
4,195,835	Hinds et al.	April 1, 1980
2,025,010	Rawlings	March 24, 1936
1,610,324	Roche et al.	December 14, 1926
Des. 348,707	Cordell	July 12, 1994

The teachings of each of the above-listed citations (which does not itself incorporate essential material by reference) are herein incorporated by reference. None of the above inventions and patents, taken either singularly or in combination, is
10 seen to describe the instant invention as claimed.

SUMMARY AND ADVANTAGES

The exercise apparatus of the present invention is adaptable to permit standing, sitting, supine and step-up exercises, and generates resistance force to enable an individual to employ isometric exercise of the major muscle groups while
15 supported at least in part on the platform. The exercise apparatus includes a platform adapted to be substantially vertically and horizontally positionable, one or more guide

members running along the bottom of the platform, from one side to the opposite side of said platform, one or more resistance cables, each inserted through a different guide member. Connectors can be attached to cable ends. User interface members can be attached to connectors. Resistance cables may each have a different resistance strength. Floor-engaging pedestals can be provided to attach to the bottom of the platform to elevate the support surface for step-up exercises.

The apparatus allows a user to do squat exercises safely, without a spotter. The apparatus allows the user to control resistance on cable ends to perform one leg exercises and one arm exercises. The apparatus allows the flexibility to incorporate add on features. The apparatus allows the user to perform multiple cardio exercises. The apparatus may be mounted on a solid structure for use with cable pulley system or bracketed on bottom for adaptation to wheelchair use. The apparatus is compact and lightweight for portability. Apparatus allows user to perform cardiovascular exercises such as cardio resistance stepping, cardio resistance rowing, and cardio resistance stationary jogging. Apparatus allows user to target specific muscle groups such as the gluts (the rear end), the abdominals, legs, including calves, thighs, and hams, arms, including forearms, biceps, and triceps, the pectorals, the shoulders, and the back.

Additional advantages of the invention will be set forth in part in the description which follows, and in part will be obvious from the description, or may be learned by practice of the invention. The advantages of the invention may be realized and attained by means of the instrumentalities and combinations particularly pointed out in the appended claims. Further benefits and advantages of the embodiments of the

invention will become apparent from consideration of the following detailed description given with reference to the accompanying drawings, which specify and show preferred embodiments of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

5 The accompanying drawings, which are incorporated into and constitute a part of this specification, illustrate one or more embodiments of the present invention and, together with the detailed description, serve to explain the principles and implementations of the invention.

FIG. 1 shows an embodiment of the present invention.

10 FIG. 2 shows an embodiment of the present invention flipped over.

FIG. 3 shows a view of the embodiment in Figs 1 and 2.

FIG. 4 shows a view of the embodiment in Figs 1 and 2.

FIG. 5 shows an embodiment of the present invention.

FIG. 6 shows an embodiment of the present invention.

15 FIG. 7 shows and embodiment of the present invention.

DETAILED DESCRIPTION

Before beginning a detailed description of the subject invention, mention of the following is in order. When appropriate, like reference materials and characters are used to designate identical, corresponding, or similar components in differing figure
20 drawings. The figure drawings associated with this disclosure typically are not drawn with dimensional accuracy to scale, i.e., such drawings have been drafted with a focus on clarity of viewing and understanding rather than dimensional accuracy.

In the interest of clarity, not all of the routine features of the implementations described herein are shown and described. It will, of course, be appreciated that in the development of any such actual implementation, numerous implementation-specific decisions must be made in order to achieve the developer's specific goals, such as compliance with application- and business-related constraints, and that these specific goals will vary from one implementation to another and from one developer to another. Moreover, it will be appreciated that such a development effort might be complex and time-consuming, but would nevertheless be a routine undertaking of engineering for those of ordinary skill in the art having the benefit of this disclosure.

As shown in **FIGs. 1-7**, an exercise apparatus **10** is provided. Exercise apparatus **10** includes a platform **20** and one or more resistance cables **30** through guide members **40** as a means for generating a resistance force. Connectors **52** can be attached to cable ends. User interface members **54, 56** can be attached to connectors. Resistance cables may each have a different resistance strength. Floor-engaging pedestals **24** can be provided to attach to the bottom of the platform to elevate the support surface for step-up exercises.

Referring to **FIG. 1**, the platform **20** has a top, bottom, and sides, and is shaped and constructed from plastics injection molding or other materials recognized by one of ordinary skill for supporting the human body during exercise. Platform is adapted to be substantially vertically and horizontally positionable. Platform is sufficiently lightweight and portable in design to permit easy handling. Top of platform **20** establishes a support surface **22**. The support surface **22** provides a stable surface for the individual to engage in exercise from a standing, sitting, kneeling,

squatting, or supine position. Preferably, the platform **20** is slightly curved on the sides where the cables **30** and guide members **40** come up to allow a smoother ride for the resistance cable **30** versus a 90 degree which tends to pinch. Those skilled in the art will know that the platform **20** can come in different sizes and shapes.

5 Pedestals **24** form the bottom portion of the platform **20**. The pedestals **24** engage the floor and elevate the support surface **22**. An individual may step on and off the support surface **22** as a variation or cardiovascular addition to the workout. Additional spacer blocks (not shown) can be fitted under the pedestals to further increase the platform height. Spacer blocks can add height and steps thereby
10 increasing the cardiovascular element of the workouts.

 In addition, risers **26** positioned atop the support surface **22**, increase the height of the platform **20**. Essentially, an individual may use a step from the floor to the support surface **22** and a second step from the support surface **22** to the risers **26**. When the apparatus **10** is positioned vertically for sitting-exercises, abutting the
15 sides of the feet against the risers **26** stabilizes the apparatus **10**. In an alternative embodiment, **26** risers can be moved and positioned at either end of the platform **20**, extending the length of the platform **20** to allow a user performing exercises laying down or sitting down to have a greater expanse to position the user upon

 The platform **20** may further include a handle **28** for easy carrying and wheels
20 for rollably supporting at least a portion of the platform **20**, a hinge to allow the apparatus to be folded up, and hardware attached to the platform **20** to secure the cables **30** when they are not in use. In an alternative embodiment, platform **20** can be the seat of a chair.

One or more guide members **40** run along the bottom of the platform **20**, from one side to the opposite side of said platform. Guide members **40**, each having a first end and a second end, can be made of rubber, steel, plastic, or other material known to those skilled in the art suitable for allowing a resistance cable **30** to freely traverse
5 through the length of the guide member **40**. Guide members **40** can be attached to platform by glue, bonding, mounts, and other suitable methods for attachment known to those skilled in the art. In an alternative embodiment, platform can be provided with tubes or cavities running through the body of the platform from sidewall to opposite sidewall, acting as guide members **40** for the cables **30**.

10 Referring to **FIGs. 5-7**, one or more resistance cables **30** provide means to generate a resistance force. The resistance cables **30**, each having a first cable end and a second cable end, are substantially inextensible in order to provide an isometric resistance to the muscle groups when the cables **30** are subjected to a stretching force. The resistance cables **30** can be bungee cables, surgical rubber tubing, rubber
15 bands or similar materials recognized by one of ordinary skill that have substantial tensile strength with the tendency or ability to return to their original length upon cessation of the stretching force. The resistance cables **30** may have different degrees of resistance, allowing an individual to exercise at both light resistances and heavy resistances. In addition, a plurality of resistance cables **30** may be combined
20 or included to have multiple strands associated with one another to increase the degree of resistance even further.

The resistance cables **30** are slidably connected to the platform **20** between the pedestals **24** via guide members **40** attached to the sides and bottom of the

platform **20**, so that the free ends of the cables **30** emerge from beneath the platform **20** at opposite sides. Each cable **30** is trained through a different guide member **40**. As shown in **FIGs. 3, 4, 6, and 7**, the cable **30** slidably inserts through the sleeve like guide member **40** such that that if one side of the cable **30** is pulled harder it pulls
5 cable **30** through the guide member **40** from the other side. The cables **30** can be easily interchanged at the platform. This allows user to raise the resistance level by exchanging a higher resistance cable for a lesser one.

Guide members **40** can be configured to have an open slit along the bottom wall of the guide member **40**, farthest from the platform, to allow a cable **30** to be
10 easily removed and replaced with a different cable, with different resistance strength.

The ends of the cables **30** may be provided with connectors **52** by which the cables **30** can be attached to user interface members, such as handgrips **54**, adjustable ankle and wrist cuffs, stirrups, a bar **56** to receive each end of the free ends of cables **30**, and a squat belt. The interface members enable a range of
15 different exercises to be performed. The connectors **52** include such means of fastening known by those skilled in the art including rings and snap rings.

As shown in **FIGs. 3, 4, 6 and 7**, cables **30** can be variably trained through the guide member **40**. For example, one end can be trained through the guide member **40** so that it is substantially longer in length than its opposing end. This is useful for
20 working one side of the body or purposely exercising asymmetrical muscles for rehabilitation due to injury or trauma, for varying the resistance in one end of a cable **30**, and for providing greater length on a cable **30** end for fuller range of workout motion.

FIGs. 5, 6, 7 illustrate various modes of operation of use of the exercise apparatus **10**. Adjustments for carrying out various exercises can be accomplished by adjusting the training of the cables **30** in the guide members to change the relative lengths of the cable **30** ends. Apparatus allows user to perform cardiovascular exercises such as cardio resistance stepping, cardio resistance rowing, and cardio resistance stationary jogging. Apparatus allows user to target specific muscle groups such as the gluts (the rear end), the abdominals, legs, including calves, thighs, and hams, arms, including forearms, biceps, and triceps, the pectorals, the shoulders, and the back.

Those skilled in the art will recognize that numerous modifications and changes may be made to the preferred embodiment without departing from the scope of the claimed invention. It will, of course, be understood that modifications of the invention, in its various aspects, will be apparent to those skilled in the art, some being apparent only after study, others being matters of routine mechanical, chemical and electronic design. No single feature, function or property of the preferred embodiment is essential. Other embodiments are possible, their specific designs depending upon the particular application. As such, the scope of the invention should not be limited by the particular embodiments herein described but should be defined only by the appended claims and equivalents thereof.